

KOVALEV, N.P.

Aluminum industry in Hungary. Biul.tekh.-ekon.inform. no.9:95-96
*61. (MIRA 14:9)
(Hungary--Aluminum industry)

KOVALEV, N.P., kand.tekhn.nauk; ZHDANOVA, G.V., inzh.

New instrument for measuring the thickness of glass fiber fabrics.

Tekst.prom. 21 no.3:46-48 Mr '61. (MIRA 14:3)

(Glass fibers) (Measuring instruments)

KOVALEV, N.P.

Promoting the use of light metals in the automobile industry of
capitalist countries. Avt.prom. 29 no.3:47-48 Mr '63. (MIRA 16:3)
(Automobile industry)

KOVALEV, Nikolay Petrovich; SOSNOVSKAYA, G.I., red.; LEUSHCHENKO,
N.L., tekhn. red.

[Field methods for testing soils in water] Polevye metody
ispytaniia gruntov v vodnoi srede. Kiev, Gosstroizdat,
USSR, 1963. 110 p. (MIRA 16:5).
(Soils--Testing)

KUCHER, G.N.; MILLER, L.Ye., red.; KOVALEV, N.P., red.;
SOVETNIKOVA, V.V., red.; ISHUTINOVA, M.D., red.;
LOGINOVA, Ye.I., tekhn. red.

[Working of nonferrous metals and alloys in capitalist countries] Obrabotka tsvetnykh metallov i splavov v kapitalisticheskikh stranakh. Moskva. Pt.1. [Technical and economic review and the technology of rolling] Tekhniko-ekonomicheskii obzor i tekhnologiya proizvodstva prokata. 1962. 349 p.
(MIRA 16:9)

1. Moscow. TSentral'nyy institut informatsii tsvetnoy metallurgii.

(Nonferrous metal industries)
(Rolling (Metalwork))

PUKHAL'SKIY, Leonid Cheslavich; KOVALEV, N.P., red.; MAZEL', Ye.I.,
tekhn. red.

[Contrast range theory of uranium ores] Teoriia kontrast-
nosti uranovykh rud. Moskva, Gosatomizdat, 1963. 175 p.
(MIRA 17:1)

(Uranium ores) (Radiometry)

GOLOVANOV, Yaroslav Kirillovich; KOVALEV, N.P., red.; MAZEL',
Ye.I., tekhn. red.

[A journey into the domain of uranium] Puteshestvie v
stranu urana. Moskva, Gosatomizdat, 1963. 92 p.
(MIRA 17:2)

PARNOV, Yeremey Iudovich; KOVALEV, N.P., red.; MAZEL', Ye.I.,
tekhn. red.

[A far search] Dal'nii poisk. Moskva, Gosatomizdat,
1963. 253 p. (MIRA 17:1)

KOVALEV, N.P., kand.tekhn.nauk

Soil density meter. Avt.dor.i dor.stroi. no.1:127-137
'65. (MIRA 18:11)

CHERNYAK, M.G.; ASLANOVA, M.S.; VOL'SKAYA, S.Z.; KUTUKOV, S.S.;
SIMAKOV, D.P.; NAYDUS, G.G.; BOVKUNENKO, A.N.; KOVALEV, N.N.;
SHKOL'NIKOV, Ya.A.; ZHIVOV, L.G.; KOVALEV, N.P.; KOZHUKHOVA,
N.V.; KOROLEVA, A.Ye.; VINOGRADOVA, A.M.; OSIPOVA, O.M.;
BADALOVA, E.I.; BRONSHTEYN, Z.I.; L'VOV, B.S.; KRYUCHKOV,
N.N.; BLOKH, K.I.; MASHINSKAYA, N.I., red.

[Continuous filament glass fibers; technology fundamentals
and their properties] Nepreryvnoe stekliannoe volokno; osnovy
tekhnologii i svoistva. Moskva, Khimiya, 1965. 319 p.
(MIRA 18:8)

KOVALEV, N. V.

KOVALEV, N. V., "The Methods of Chemical Control and Their Outlook." Zashchita
Rastenii, vol. 8, no. 1, 1931, pp. 5-20. 421 D36

SO: SIRA SI-19-53, 15 Dec 1953

KOVALEV, N. V.

KOVALEV, N. V., "The Control of Smut as a State System," Zashchita Rastenii,
vol. 8, no. 3, 1931, pp. 217-219. 421 D36

SO: SIRA SI-19-53, 15 Dec 1953

KOVALEV, N. V.

BAKHTIN, V. S. DAVYDOV, P. N., KOVALEV, N. V., LYUBISHCHEV, A. A., and

PROIDA, P. A. "To Take into Account the Mass Scale Economical Experiment,"

Zashchita Rastenii, vol. 8, no. 1, 1931, pp. 341-350. 421 D36

SOF SIRA, SI 90-53, 15 Dec. 1953

ca 17

1ST AND 2ND ORDERS PRECEDES AND PROPERTIES INDEX 3RD AND 4TH ORDERS

Cultivation of poisonous plants. N. V. Kovalev and E. V. Ikonen. *Bull. Applied Botany, Grafting Plant Breeding* (U. S. S. R.) Ser. A, No. 9, 111-13(1934); *Ber. ges. Physiol. expil. Pharmacol.* 83, 307 8.---Sixty species of poisonous plants have been cultivated in Russia, and 30 developed for com. use. Among these are *Pyrethrum cyneniracifolium*, *P. macrophyllum*, *Anabasis aphylla*, *A. brachiata*, *Veratrum album*, *V. nigrum*, *Pozz-num* and *Schinus* James C. Munch

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOVALEV, N. V.

"Ecological Differentiation of the Cherry Plum (*Prunus Cerasifera* Ehrh),"
Dokl. AN SSSR, 23, No.3, 1939

Maykop Exptl Sta., Inst. Plant Industry, Leningrad

KOVALEV, N. V.

"Immunity of Fruit Trees to Fungus Diseases," Dokl. AN SSSR, 27, No.2, 1940

Maykop Exptl Sta., Inst. Plant Industry, Leningrad

MIRZAYEV, M. M.; KOVALEV, N. V.

Fruit Culture - Turkmenistan

Fruit industry in the Turkmen Canal area. Sad i og., No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED.

1. KOVALEV, N. V. ; TUPITSYN, D. I.
2. USSR (600)
4. Apple - Main Turkmen Canal Region
7. Apple trees in commercial fruit culture in the Main Turkmen Canal region.
Sad i og. No. 10. 1952.
9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

111 111 111 N. V.
KOVALEV, N.V.

Role of the cherry plum in the breeding stone fruits. Probl.bot.
no.2:223-260 '55. (MLRA 8:11)

(Plum)

Kovalev, N. V.

PETROV, Mikhail Platonovich; OSIPOV, Ivan Grigor'yevich; KOVALEV, Nikolay
Vasil'yevich, redaktor

[Pomology of Turkmenistan] Plodovodstvo Turkmenistana. Ashkhabad,
Akademiia nauk Turkmeniskoi SSR, 1956. 175 p. (MLRA 10:8)
(Turkmenistan--Fruit culture)

KOVALEV, ~~N.S.~~
N.V.

USSR/Cultivated Plants - General Problems.

M.

Abs Jour : Ref Zhur' - Biol., No 4, 1958, 15462
Author : N.V. Kovalev, N.S. Glushchenko, D.I. Tupitsyn
Inst : Shreder Fruit and Berry Institute.
Title : Fruit and Berry Crops in the Down Stream Region of the
Amu-Dar'ya.
(Plodovyye i ovoshchnyye kul'tury v nizov'yakh Amu-Dar'i).
Orig Pub : V sb.: Materialy po proizvodit. silam Uzbekistana.
Vyp. 2. Tashkent, AN UzSSR, 1956, 5-89.
Abstract : In the down stream regions of the Amu-Dar'ya in Kara-Kalpak ASSR and Khorezmskaya Oblast' the garden areas may be increased from 3200 hectares to 15-20 thousand hectares. The results of the study made by the Expedition of the Fruit and Berry Institute im. Shreder are

Card 1/3

KOVALEV, N.V.: ~~TIBITSYN~~, D.I.

Vegetative propagation of wild fruit plants under natural conditions and natural selection. Izv.AN Uz.SSR 3:99-100 '56.

(MIRA 12:6)

(Tien Shan--Fruit trees)

USSR/Cultivated Plants - Fruits - Berries.

M

Abs Jour : Ref Zhur Biol, No 18, 1958, 32471

Author : Kovalev, N.V., Glushchenko, K.S.

Inst : AS Uzbek SSR

Title : Growth of the Shoots of a Fruit Tree as an Indicator of the Influence of Nutritional Conditions.

Orig Pub : Dokl. AN UzSSR, 1956, No 6, 41-46

Abstract : At the Shreder Institute of Fruits and Berries (Uzbekakaya SSR) observations were conducted on the development of a summer bud transferred in August onto a 2-year old stock. Prior to this, the stock was fertilized with N and P. The following spring, nitrogen fertilizer was applied and the wilding above the bud was cut off. After the start of the growth of the bud in the leaf axils of the stock, the lateral shoots began to grow. By the 15th of July

Card 1/3

- 105 -

KOVALEV, N.V.

USSR/Cultivated Plants - Fruits and Berries.

M-5

Abs Jour : Ref Zhur - Biol., No 3, 1958, 10989

Author : Kovalev, N.V., Tupitsyn, D.I.

Inst : Fruit and Berry Institute imeni Shreder, Central Asian Station of the VIR /All-Union Institute of Plant Cultivation/. Chinese Pears in Central Asia.

Orig Pub : Izv. AN UzSSR, 1956, No 8, 97-98

Abstract : On the territory of Uzbekistan the Fruit and Berry Institute imeni Shreder and the Central Asian Station of the All-Union Institute of Plant Husbandry have collected a significant quantity of varieties of Chinese pear species. Observations have demonstrated that the Chinese pear growing in Central Asia are resistant to heat and diseases. It is recommended that more be introduced into cultivation. A description of them is given.

Card 1/1

KOVALEV, N.V.

USSR/Cultivated Plants. Fruits. Berries.

APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000825610005-4"

Abs Jour: Ref Zhur-Biol., No 5, 1958, 20481.

Author : ~~N.V. Kovalev~~, D.K. Sapon

Inst : The Shreder Fruit and Berry Institute.

Title : The Problem of Methods of Evaluation for Fruit Culture Stock. (K voprosu o metodakh otsenki podvoyev u plodovykh kul'tur).

Orig Pub: Dokl. AN UzSSR, 1956, No 10, 45-49.

Abstract: To determine the compatibility of stocks, the Shreder Fruit and Berry Institute in 1953 grafted simultaneously one, two, and three stocks to a single graft slip. The Sievers seedling stock with the golden winter Parmen graft (I) produced a sturdy intergrowth of the components and developed uniformly with each other; at the end of the second year the growth of the skeleton and overgrowing roots

Card : 1/2

KOVALEV, N.V.

Establishing species. Bot.zhur.41 no.6:855-857 Je '56. (MLRA 9:10)

1.Vsesoyuznyy institut rasteniyevodstva Vsesoyuzney akademii sel'sko-
khozyystvennykh nauk imeni Lenina, Leningrad.
(Botany--Classification)

Country : USSR
 Category : CULTIVATED PLANTS, FRUITS, Berries. M
 Abs. Jour. : REZHUR-BIOL., 21, 1958, NO-96113
 Author : Kovalev, N.V.; Glushchenko, I.S.
 Institution : AN SSSR
 Title : Problems in the Water Supply of Fruit Trees
 Orig. Pub. : V sb.: Biol. osnovy oshcheyem zemled. M., AN SSSR, 1957, 182-185
 Abstract : The reason is founded for an irrigation rate of 6000-7500 cubic meters per hectare on a mature fruit producing apple orchard in Tashken Oasis on loess-like loams. The irrigation arrangement is explained. A brief glance is taken at the problems relating to water requirement on gravelly soil.

Card: 1/1

USSR/Cultivated Plants - Fruits. Berries. M-6
 Abs Jour : Ref Zhur - Biol., No 20, 1958, 91837
 Author : Kovalev, N.V.
 Inst : Institute of Horticulture and Viticulture in Teshkent
 Title : Propagation of Peach with Seeds.
 Orig Pub : Agrobiologiya, 1957, No 2, 127-129.
 Abstract : Peach (P) propagation by seeds is shown to be possible. This is not infrequently practiced in Uzbekistan. The study of this problem has for many years at the Institute of Horticulture and Viticulture in Tashkent held out the possibility of deriving varieties, which from the practical standpoint, produce almost ideal offspring. The following belong to them: Rogani Gov, Zargaldak Vira, Ak-Shaftalu No 1, Kirkma, Elberta, Valiant, Yellow August, Navoy, Amu-Dar'ya, the Early Red Nectarine and the

Card 1/2

Country : USSR
 Category : CULTIVATED PLANTS, FRUITS, Berries.
 Abs. Jour. : REF ZHUR-BIOL., 21, 1958, NO-96106
 Author : Kovalev, N. V.
 Institut. : ~~INSTITUT D'AGRICULTURE~~
 Title : Innovations in Fertilizing Orchards on Irrigated
 Sierozem Soil

Orig. Pub. : Sots. s.kh. Uzbekistana, 1957, No.6, 67-69

Abstract : Experimentation has shown that the additional shoot growth occurs only during 1-1½ months and it is necessary to provide the plants during this period with considerable reserves of nutrients which require fall placement. The root systems growing in the sierozem soil of Central Asia, poor in N and P, do not begin to grow until the end of April. The P applied to this soil moves slowly and is taken up by the root system only

Card: 1/3

131

USSR/Cultivated Plants - Fruits. Berries.

M

Abs Jour : Ref Zhur Biol., No 18, 1958, 82476

Author : Mirzayev, M.M., Kovalev, N.V.,

Inst : -

Orig Pub : Materialy po proizvodit, silam Uzbekistana, 1957, vyp. 6, 257-264

Title : On the Prospects of Fruit Growing in Golodnaya Steppe

Abstract : The natural conditions of Golodnaya Steppe are described. It is noted that the fruit plants successfully grow and bear fruit on lands with seasonal salinity not exceeding 0.2-0.3% in the water soluble salt content. Experimentation in fruit growing in Golodnaya Steppe is reported. Selection of the kinds, and varieties and the agricultural complex directed at the control of contamination with salt are recommended. A brief plan of fruit growing according to districts is given. -- I.K. Fortunatov

Card 1/1

Abs Jour : Ref Zhur Biol., No 12, 1958, 53806

Author : Kovalev, N.V., Kalmykov, SS.

Inst : -

Title : On the Origin of the Cultivated Pears of Central Asia

Orig Pub : Tr. po prikl. botan., genet. i selektsii, 1957, 30, No 3, 211-218

Abstract : In the old focal points of pear cultures, dating back some 3-4 thousand years, the authors established the existence of six groups of cultivated and semi-wild varieties: Bokhara pear and its cultivated seedlings, Bokhara pear mixed with Sogdia, Sogdia pear (Nashvat type) and its seedlings, Central Asiatic and its seedlings, Central Asiatic mixed with the Bokhara. In younger focal points of pear culture, the European varieties - western and eastern - are also found. In the mountainous Bostandykskiy Rayon, the authors discovered

Card 1/2

KOVALEV N. V.

USSR/Cultivated Plants. ~~Fruits. Berries.~~ .

M

Abs Jour : Ref Zhur - Biol., No 8, 1958, 34803

Author : Kovalev N.V., Sabirov M.K.

Inst : -

Title : Coalescence of Fruit Tree Roots

Orig Pub : Botan. zh. 1957, 42, No 8, 1286-1288

Abstract : In irrigated areas of Tashkent, seedlings of the apple tree varieties Kandil'-Sinap, Napoleon, Reinette, Orleans, Parmen Winter Golden and Hedzvetzskiy, developed a coalescence of the roots in 3 to 5 percent of the plants of all varieties. Described are 5 types of such coalescence. -- Fortunatov.

Card : 1/1

KOVALEV, N. V.

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CIA-RDP86-00513R000825610005-4

Large-fruit variant of Berberis oblonga. Biul.Glav.bot.sada
no.35:119-120 '59. (MIRA 13:2)

1. Sredneaziatskaya stantsiya Vsesoyuznogo instituta rasteniye-
vodstva.

(Ikhnach-Say Valley--Barberries)

KOVALEV, N.V.

Introducing new plant forms and varieties from the flora of the
western Tien Shan. Trudy Bot.inst.Ser.6 no.7:130-134 '59.
(MIRA 13:4)

1. Plodo-yagodnyy institut im. R.R.Shredora AN UzSSR, Tashkent.
(Tien Shan--Fruit)

ZHURAVLEV, M.S., kand. sel'khoz. nauk; KOVALEV, N.V., kand.
sel'khoz. nauk; MONAKHOV, G.V.; MUKHAMEDOV, G.K.;
TATAUROVA, A.S.; TUZ, A.S.; TUFITSYN, D.I.; FROLOV,
A.I.; VYSOTSKIY, K.A., kand. sel'khoz. nauk, red.;
PAVLOVA, N.M., doktor biol. nauk, red.; KUL'TISOV, N.V.,
kand. sel'khoz. nauk, red.; PYLAYEVA, L.N., red.;
SOROKINA, Z.I., tekhn. red.

[Catalog of the prospective varieties of fruit, berry,
and grape crops in the collection of the Central Asia
Experiment Station of the All-Union Institute of Plant
Culture] Katalog perspektivnykh sortov plodovo-
iagodnykh kul'tur i vinograda v kolleksii Sredneaziatskoi
opytnoi stantsii. Tashkent, Vses. nauchno-issl. in-t raste-
nievodstva, 1961. 123 p. (MIRA 16:12)

1. Sredneaziatskaya opytnaya stantsiya.
(Soviet Central Asia--Fruit--Varieties)

BERISHVILI, I.M., kand.sel'skokhoz.nauk; AKHVLEDIANI, Ye.N., aspirantka;
PODARYASHCHIIY, A.S., agronom; POLITOV, A.K., entomolog (Groznyy);
SELIN, I.V., starshiy nauchnyy sotrudnik; BUGROVA, T.I.; POPOVA,
K.N.; KOVALEV, N.V., kand.sel'skokhoz.nauk; NASIROV, A.

Brief information. Zashch. rast. ot vred. i bol. 8 no.11:56-58
N '63. (MIRA 17:3)

1. Gruzinskiy institut zashchity rasteniy (for Berishvili, Akhvlediani). 2. Opytnoye khozyaystvo "Boyevik", g. Novozybkov, Bryanskoy obl. (for Podaryashchiiy). 3. Smolenskaya oblastnaya sel'skokhozyaystvennaya opytnaya stantsiya (for Selin). 4. Punkt sluzhby ucheta i prognozov, g.Kurgan-Tyube, Tadzhikskoy SSR (for Bugrova, Popova). 5. Maykopskaya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta rasteniyevodstva (for Kovalev). 6. Uzbekskiy institut zashchity rasteniy, Tashkent (for Nasirov).

LAPTEV, Yu.P., starshiy nauchnyy sotrudnik; ASSAUL, V.D.; KOVALEV, N.V., kand. sel'skokhoz. nauk; ZAKHAROVA, T.I., mladshiy nauchnyy sotrudnik; MAMAYEVA, Kh.P.; DUBINEVICH, B.N., starshiy nauchnyy sotrudnik

Brief information. Zashch. rast. ot vred. i bol. 9 no.9:54-56 '64.
(MIRA 17:11)

1. Zaveduyushchiy laboratoriyey fitopatologii Vinnitskoy oblasti (for Assault). 2. Maykopskaya opytnaya stantsiya Vsesoyuznogo nauchno-issledovatel'skogo instituta rasteniyevodstva (for Kovalov). 3. Vsesoyuznyy institut zashchity rasteniy (for Zakharova). 4. Moskovskiy pedagogicheskiy institut imeni V.I. Lenina (for Mamayeva). 5. Mironovskaya selektsionnaya stantsiya (for Dubinevich).

KOVALEV, N. Ya.

KOVALEV, N. Ya.

Distribution scheme for housing construction in Moscow during the sixth five-year plan. Goskhozizvest. 31.05.7:1-4 31 '57. (MLRA 10:9)

1. Domestitel' predsedatelya Gosstroy plan voy komisii Ispolkoma
Moskvyta.

(Moscow--City planning) (Apartment houses)

~~KOVALEV, N.Ya.~~

Organization and methods for carrying out major repairs in
apartment houses in Moscow. Gor.khoz.Mosk. 33 no.6:32-34
Ja '59. (MIRA 12:10)

1. Nachal'nik 'Upravleniya kapital'nogo remonta zhilykh domov, Moskva.
(Moscow--Apartment houses--Maintenance and repair)

KOVALEV, N.Ya.

Repairing and painting facades in 1960. Gor.khoz.Mosk.
34 no.5:8-12 My '60. (MIRA 13:7)

1. Nachal'nik Upravleniya kapital'nogo remonta zhilykh domov
Mosgorispolkoma.
(Moscow---Facades) (House painting)

KOVALEV, N.Ya.

Major repair of apartment houses. Gor. khoz.Mosk. 36 no.3:6-10
Mr '62. (MIRA 15:6)

1. Nachal'nik Upravleniya kapital'nogo remonta zhilykh
domov g. Moskvyy.
(Moscow--Apartment houses--Maintenance and repair)

KOVALEV, N. Ye.

KOVALEV, N. Ye: "Moral training of students in the process of socially useful work (based on material from working in the fifth through seventh classes)." Min Education RSFSR. Leningrad State Pedagogical Inst imeni A. I. Gertsen. Chair of General Pedagogy. Leningrad, 1956
(Dissertation for the Degree of Candidate in Pedagogical Sciences)

So: Knizhnaya Letopis', No. 18, 1956

KOVALEV, N.Ye.

Evaluation of students' knowledge and skills in school workshops.
Politekh. obuch. no.8:17-20 Ag '58. (MIRA 11:9)
(Manual training)

KOVALOV, N. Ye.

"I. P. Pavlov's Physiological Surgery in Experimental Chemotherapy of Opisthorchiasis." Cand Med Sci, All-Union Inst of Helminthology, Makhachkala, 1953. (RZhBiol, No 4, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

KOVALEV, N.Ye.

New data on the treatment of experimental opisthorchosis with hexachloroethane and with carbon tetrachloride. Med. parazit., Moskva no.3:253-257 May-June 1953.
(GIMI 25:1)

1. Of the Clinical Department (Head -- Prof. N.N. Plotnikov) of the Institute of Malaria, Medical Parasitology, and Helminthology (Director -- Prof. P. G. Sergiyev), Ministry of Public Health USSR.

KOVALEV, N. Ye.

KOVALEV, N.Ye.

Results of treating *Taenia saginata* infections with male fern combined with acrichine in a mass campaign against helminths. Med paraz. i paraz. bol. 24 no.2:106-108 Ap-Je '55 (MLRA 8:10)

1. Iz kafedry biologii Dagestanskogo meditsinskogo instituta (dir.-instituta dotsent S. Yu. Alibekov) Dagestanskoy respublikanskoy protivomalyariinoy stantsii (zav.stantsiyey L.M. Popova)

(PLANTS,

male fern, ther. of tapeworm infect. with quinacrine)

(ANTHELMINTICS, therapeutic use,

male fern in tapeworm infect. with quinacrine)

(QUINACRINE, therapeutic use,,

tapeworm infect. with male fern)

KOVALEV, N.Ye., kandidat meditsinskikh nauk

Combined treatment of taeniarhynchosis. Sov.med. 20 no.12:51-55
D '56. (MLRA 10:1)

1. Iz Dagestanskoy sanitarno-epidemiologicheskoy stantsii (glavnyy
vrach I.P.Pavlenko)

(TAENIA, infect.

Taeniarhynchus, ther., fern extracts with quinacrine)

(QUINACRINE, ther. use

Taeniarhynchus infect., with fern extract)

(PLANTS, ther. use

fern extract, ther. of Taeniarhynchus infect.
with quinacrine)

KOVALEV, N.Ye.

Treatment of coccidiosis in children. Med. paraz. i paraz.bol.
28 no.6:716-717 N-D '59. (MIRA 13:12)
(COCCIDIOSIS)

KOVALEV, N.Ye.

Combination of Aspidium and acriquine for treating Taeniarhynchus
infection. Med.paraz.i paraz.bol. no.5:518-521 '61. (MIRA 14:10)

1. Iz kafedry biologii Dagestanskogo meditsinskogo instituta
(dir. instituta M.M. Maksudov, zav. kafedroy N.Ye. Kovalev) i
Respublikanskoy sanitarno-epidemiologicheskoy stantsii (glavnyy
vrach E.M. Allahverdov).
(ASPIDIUM) (QUINACRINE) (TAENIA)

KOVALEV, N.Ye.

Experience in the eradication of taeniarhynchosis in rural districts of the Dagestan A.S.S.R. Sovet. med. 27 no.9: 71-75 S'63 (MIRA 17:2)

1. Iz kafedry obshchey biologii Dagestanskogo meditsinskogo instituta i parazitologicheskogo otdela Respublikanskoy sanitarno-epidemiologicheskoy stantsii.

KOVALEV, N. Ye.

Survival of cysticerci using different cooking methods for
measled beef. Med. paraz. i paraz. bol. 34 no. 5:566-570
S-O '65 (MIRA 19:1)

1. Kafedra obshchey biologii Dagestanskogo meditsinskogo in-
stituta, Makhachkala. Submitted April 16, 1965.

KOVALEV, O.A. (Leningrad)

Experimental studies of acute cerebral prolapse in various central nervous system function tests. Vop.neirokhir. 24 no.6:35-40 N-D '60. (MIRA 14:1)

1. Voenno-meditsinskaya ordena Lenina akademiya imeni S.M. Kirova.
(BRAIN) (NERVOUS SYSTEM)

KOVALEV, O.A. (Leningrad)

Some mechanisms of acute prolapse of the brain in disorders of the brain stem. Arkh. pat. 25 no.3:44-50 '63.

(MIRA 17:12)

1. Iz kafedry patologicheskoy fiziologii (nachal'nik - deystvitel'nyy chlen ANU SSSR I.R. Petrov) Voenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.

ACCESSION NR: AR4027933

S/0137/64/000/002/E005/E005

SOURCE: RZh. Metallurgiya, Abs. 2E32

AUTHOR: Dmitriyev, P. T.; Kovalev, O. D.

TITLE: Argon-hydrogen welding of nickel and nickel-based alloys

CITED SOURCE: Tr. Vses. n.-i. i konstrukt. in-t khim. mashinostr., vy*p. 43, 1963, 70-76

TOPIC TAGS: argon arc welding, nickel welding, nickel alloy welding

TRANSLATION: To prevent the formation of pores in the metal of the weld seam in the manual and automatic Ar-arc welding of NP-2 Ni, monel metal NMZhMts28-2.5-1.5, and Ni with monel metal and monel metal with Kh18N9T steel, 3.2-3.5% H₂ is added to Ar; the H₂, by combining with O₂, prevents the latter from penetrating into the weld metal as Ni oxide. The mechanical properties of the weld seam are: (1) for NP-2, σ_b 37.2 kg/mm²; σ_k 9.6 kg/cm²; (2) for NMZhMts28-2.5-1.5, σ_b 51.3 kg/mm²; σ_k 10.2 kg/cm²; (3) for NMZhMts28-2.5-1.5 and NP-2, σ_b 42.2 kg/mm²; σ_k 9.9 kg/cm²; (4) for NMZhMts28-2.5-1.5 and Kh18N9T, σ_b 52 kg/mm²; σ_k 8.5 kg/cm². The bending angle is 180° in all cases. Yu. Sokolov

Card 1/2

Card 2/2

KOVALEV, O.G. [Koval'ov, O.H.]

Significance of imitation in the formation of the child's personality.
Nauk. zap. Nauk.-dosl. inst. psikh. 11:220-224 '59.

(MIRA 13:11)

1. Gosudarstvennyy universitet im. A.O.Zhdanova, Leningrad.
(Imitation)

KOVALEV, O.I.

Some instruments for processing seismograms. Trudy Geofiz.no.35:269-
276 '56. (MLRA 10:1)

(Seismology)

Kovalev, O.I.

49-58-3-3/19

AUTHORS: Vasil'yev, Yu.I., Kovalev, O.I. and Parkhomenko, I.S.

TITLE: Investigation of the Crystalline Foundation by the Method of Refracted Waves Under Conditions of Incomplete Screening.I.
(Issledovaniye kristallicheskogo fundamenta metodom prelomlennykh voln v usloviyakh nepolnogo ekranirovaniya. I)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, No.3, pp. 317 - 329 (USSR).

ABSTRACT: Of all the existing geophysical methods of prospecting, including the seismic method of refracted waves, the most reliable and accurate results are obtained in investigating a crystalline foundation by means of the method of refracted waves. In a number of regions, particularly in the eastern part of the Russian platform, prospecting of the foundation by means of refracted waves encounters serious difficulties, particularly due to the presence in the covering medium of thick layers of carbonate rocks in which the speeds of the elastic waves are equal or almost equal to those characterising the crystalline formations. Therefore, conditions are created which are near to those of screening of longitudinal, refracted primary waves in the respective surfaces of the crystalline formations. The Geophysics Institute of the Ac.Sc. USSR (Geofizicheskii institut AN SSSR) carried out special tests for elucidating the possibility

Card1/4

49-58-3-3/19

Investigation of the Crystalline Foundation by the Method of
Refracted Waves Under Conditions of Incomplete Screening. I.

of exploration of the foundation by means of the method of correlation of refracted waves under the given seismological conditions. The work included evolving a low-frequency modification of the method of correlation of refracted waves. The work was carried out under the direction of G.A. Gamburtsev between 1951 and 1955 with the participation of the authors of this paper and a number of other people of the Geophysics Institute of the Ac.Sc. USSR. The results of these investigations are described in this paper. The experiments were based on conclusions derived from earlier work, according to which optimum conditions for recording longitudinal, refracted waves corresponding to the surface of crystalline rocks, under conditions approaching screening, can be created by utilizing sufficiently large wavelengths, i.e. by using apparatus which ensures the possibility of recording of frequencies of oscillation of the soil which are lower than those usually applied in seismic prospecting. The apparatus used is described in para. 1. It is designed to record frequencies of the range 10 - 35 c.p.s.

Card 2/4

49-58-3-3/19

Investigation of the Crystalline Foundation by the Method of
Refracted Waves under Conditions of Incomplete Screening. I.

The circuit of the low-frequency amplifier in Fig. 2 and the frequency characteristics in Fig. 3 are shown. Para. 2 deals with the technique used in the investigations. The experimental results are dealt with in para. 3, giving a number of seismograms and hodographs. The carried out investigations show that an application of low-frequency apparatus permits recording longitudinal, refracted waves corresponding to the surface of the crystalline foundation in cases in which the latter is located under a thick layer of carbonate formations in which the speed of elastic waves is almost the same as in the crystalline formations. Earlier attempts to use, for the same purpose, medium-frequency apparatus did not prove successful. Considerable differences were detected in the dynamic characteristics of waves corresponding to the refracted layers in the carbonate formation and in the surface of the crystalline formations (differences in the features of the recording, the frequency and the degree of attenuation with distance). A low-frequency modification of the correlation method of refracted waves was developed, which can be used not only for investigating crystalline foundations, but also

Card 3/4

Investigation of the Crystalline Foundation by the Method of
Refracted Waves under Conditions of Incomplete Screening. I. ^{49-58-3-3/19}

for studying thick layers of sedimentary rocks, particularly in the case of strong absorption of seismic energy or if screening layers are present. The authors consider it advisable to carry out tests also for recording refracted waves by means of low-frequency apparatus.

There are 14 figures and 10 references, all of which are Russian.

ASSOCIATION: Institute of Physics of the Earth Ac.Sc. USSR.
(AN SSSR institut fiziki Zemli)

SUBMITTED: February 13, 1957

AVAILABLE: Library of Congress
Card 4/4

49-58-5-1/15

AUTHORS: Vasil'yev, Yu. I. Kovalev, O. I., Parkhomenko, I. S.

TITLE: On Investigating the Crystalline Foundation by Means of the Method of Refracted Waves Under Conditions of Incomplete Screening. Part II (Ob issledovanii kristallicheskogo fundamenta metodom prelomlennykh voln v usloviyakh nepolnogo ekranirovaniya. II)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 5, pp 569-581 (USSR)

ABSTRACT: In Part I of this paper (same journal, Nr 3, 1958) an attempt is described of applying a low frequency modification of the method of refracted waves for exploring the crystalline foundation in cases where the foundation is incompletely screened, and the results are given which were obtained in experimental work in the Volga-Ural region. In this paper a more detailed evaluation is made of the obtained experimental method for the purpose of detecting characteristic features of the observed data and for justifying this method of exploration. Certain dynamic and kinematic features are considered which characterise the main waves under conditions of small speed differentiation of the medium in presence of incomplete screening. Quantitative evaluation is given of the effect of screening. Furthermore, the problems of inter-

Card 1/4

49-58-5-1/15

On Investigating the Crystalline Foundation by Means of the Method of Refracted Waves Under Conditions of Incomplete Screening. Part II.

pretation of the obtained information and the exploration potentialities of the method are considered. Para.1 deals with the attenuation and the stability of the main waves corresponding to the surface of the foundation, (t_{II}) , and the refracting layers in a carbonate massif (t_I) considering the obtained experimental results and the causes of differing attenuation of the waves, as well as the problem of the magnitude of the differing attenuation of the waves for recording the t_{II} waves. Para.2 deals with the screening of the crystalline foundation, considering the kinematic conditions, as well as the dynamic conditions of screening. Para.3 deals with certain features of refracted waves corresponding to the surface of the foundation under conditions of small speed differentiation of the medium. Para.4 deals in detail with problems of qualitative and quantitative interpretation. In Para.5, relating to the exploration potentialities of the method, the authors deal with the possibility

Card 2/4

49-58-5-1/15

On Investigating the Crystalline Foundation by Means of the Method of Refracted Waves Under Conditions of Incomplete Screening. Part II.

in principle of exploring the foundation under conditions of incomplete screening by the described method, considering also the accuracy and the main trends in perfecting the method. . It is possible with adequate probability to distinguish structural elements of the foundation of at least 100-200 m with incidence angles of at least 1° - 2° . The errors relating to the relief of the foundation are at present determined to a considerable extent by lack of information on the layer speeds in the lower regions of the massif and may reach 20 to 25% of the real fluctuations at the surface of the foundation. As an example of the comparison of seismic and geological data, a schematic structural chart is reproduced in Fig.6, p.579, which shows the foundation as plotted from seismic data and also information gained from bore holes; on the Northern part of the territory a satisfactory agreement was found to exist between the seismic and the geological data. One of the wells in the South Western part of the territory sunk after gaining knowledge from seismic data confirmed the presence of a rise in the level of the foundation whereby the difference between the seismic data and the data obtained by drilling amounts to about 10-15% of the depth of

Card 3/4

49-58-5-1/15

On Investigating the Crystalline Foundation by Means of the Method of Refracted Waves Under Conditions of Incomplete Screening. Part II.

location of the foundation. It is pointed out that the developed method which is based on recording of only the longitudinal refracted low frequency waves can be considerably improved by combining observation of the longitudinal waves with observations of the "exchange" longitudinal-transverse refracted waves corresponding to the same surface and also by combining with the refracted and reflected waves corresponding to considerably deeper boundaries. Some experience in recording such waves and using the results for exploring the foundation in the Volga-Ural region is already available. There are 6 figures and 17 Soviet references.

ASSOCIATION: Akademiya nauk SSSR, Institut Fiziki Zemli (Academy of Sciences USSR, Institute of Physics of the Earth)

SUBMITTED: February 13, 1957.

1. Geophysical surveying--USSR

Card 4/4

AUTHOR: Kovalev, O.I.

SOV/49-52-7-9/16

TITLE: Low-frequency Prospecting Seismo-receiver (Nizkochastotnyy razvedochnyy seysmopriyemnik)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya Geofizicheskaya
1958, nr 7, pp 913 - 916 (USSR)

ABSTRACT: The modern, seismic survey and seismic depth sounding depend on the registration of low-frequency waves. The instruments are required to register them with great accuracy.

One of the best instruments, the most popular American seismo-receiver S-36 and others designed for frequencies of 2h become rapidly outdated. Therefore, there is a pressing need for a new design of apparatus.

A low-frequency, seismo-receiver NS-1 (Figure 1) was designed by the Institute of Terrestrial Physics, Ac.Sc. USSR, in 1956. The apparatus was tried on various occasions in the seismic surveys and proved to be sufficiently portable and very accurate. Its proper frequency with no damping is 3.5h. The electromagnetic damping was applied, by which a large range of frequencies could be obtained (Figure 2).

Card1/3

Low-frequency Prospecting Seismo-receiver

SOV/49-58-7-9/16

The feature of the NS-1 is the electromagnetic device in place of a usually employed heavy inert mass. The principle of the apparatus is shown in Figures 3 and 4, with the following denotations: M - magnet, a, b - lever, hinged to body at point a; b, v - spring, zh, g - beam (balance arm) having a coil on its left side, e, d - joint (hinged).

When the body of the apparatus moves upward, the magnet remains at its proper position; the lever a-b is lowered in relation to the body, also lowered is the right part of the beam, while its left part (with the coil) moves up. Therefore, the coil movement in the magnetic field will produce an electromagnetic oscillation in accordance with the movements of the body. The proper frequency of the apparatus is 3.5 h which can be changed from 1.5-33 h. An example of the results obtained by NS-1 is shown by the tracings on top of the seismograms shown in Figures 5-8. The middle and lower tracings were recorded by the usual receivers under exactly the same conditions. The receiver can be applied with great advantage in the

Card2/3

Low-frequency Prospecting Seismo-receiver SOV/49-58-7-9/16

work requiring a low-frequency such as the seismic survey or sounding through the Earth's core.

There are 8 figures, 7 Soviet and 6 English references.

ASSOCIATION: Akademiya nauk SSSR Institut fiziki Zemli
(Ac.Sc.USSR, Institute of Terrestrial Physics)

SUBMITTED: January 31, 1958

Card 3/3

1. Seismological equipment--Design 2. Seismological
equipment--Performance 3. Seismic waves--Analysis

86314

3.9300
9.9865

S/049/60/000/007/005/009/XX
E191/E381

AUTHORS: Kovalev, O.I. and Molotova, L.V.

TITLE: An Impulse Borehole Device for the Excitation of Elastic Waves of Various Types

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No. 7, pp. 959 - 969 + 2 plates

TEXT: A patented device (Author's Certificate No. 124648) for the excitation in deep boreholes of transverse seismic waves by impulses has been developed for the purposes of examining the physical properties of rocks, determining the absorption coefficients of longitudinal and transverse waves, studying the form and peculiarities of an impulse in the immediate vicinity of the impact and the excitation of transverse waves in seismic exploration with the help of transverse reflected waves. The device is a mechanical exciter in which a heavy ram, under the action of a spring, hits a slug which is in close contact with the rock. The device consists of a borehole cartridge unit, a suspension rod system, an

Card 1/4

86314
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E191/E381

An Impulse Borehole Device for the Excitation of Elastic Waves of Various Types

operating head and a supporting cover at the top of the borehole. The borehole cartridge unit consists of a body, an impact head and a casing. The steel body of the impact head contains the impact mechanism and the winding-up and release mechanisms. The impact mechanism has a heavy ram placed in the cylindrical channel of the body pressed against the slug by a stiff steel spring. The slug is mounted on the body through a rubber damper. The winding-up of the ram is performed by the winding mechanism and compresses the spring. When the ram is released, it presses the slug against the rock whilst the casing takes the reaction. The suspension rod units, made of duralumin, each consist of 3 bars and have a length of 2 m. The corresponding bars are connected when further suspension rod units are added. The operating head controls the operation of the cartridge by pressing the slug against the borehole wall, winding up and releasing the ram through the 3 bars in each suspension rod unit. The weight

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Card 2/4

86314

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E191/E381

An Impulse Borehole Device for the Excitation of Elastic Waves of Various Types

of the borehole cartridge and operating head is 9.5 kg and the weight of each rod unit is 3 kg. The depth of suspension can be increased to about 50 m. The elastic energy released at each impact is about 10 - 20 times less than the explosion energy of a single detonator. It is stated that the energy of the device could be increased ten-fold. Field tests with the new device are described. The pulse shape, although complex, has a simple amplitude-frequency spectrum and does not depend on the depth or point of impact nor on the type of wave. The directionality has been found to be near the theoretical for a source of the type of a concentrated force. The amplitude spectra of the SH wave excited by the impact are shown in Fig. 5. It is advisable to place the device at some depth inside the borehole. Comparing the frequency spectra of explosion and impact-excited vibrations, it is shown that the difference is small. Some results of studying the physical properties of rocks with the new device

Card 3/4

Card 1/4

ACC NR: AP6021458

SOURCE CODE: UR/0413/66/000/011/0079/0080

INVENTOR: Kovalev, O. I.; Shvedchikov, L. K.

ORG: None

TITLE: An electrodynamic seismic detector. Class 42, No. 182351 [announced by the All-Union Scientific Research Institute of Geophysical Exploration Methods (Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 79-80

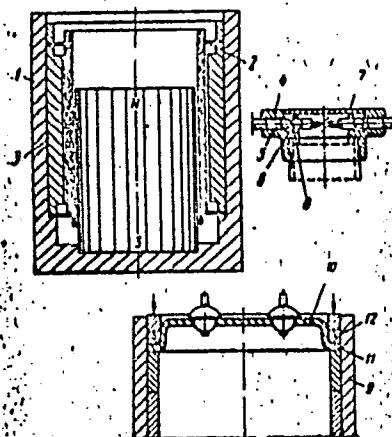
TOPIC TAGS: seismology, electrodynamic seismograph, magnetic circuit

ABSTRACT: This Author's Certificate introduces an electrodynamic seismic detector which contains a housing, head, sealing system, spring-supported magnetic system, magnetic circuit and lead wires. The unit is designed for improved sensitivity and reliability. The magnetic circuit is detachable and is made in the form of an external shell with an inner groove along the diameter of the suspension springs. An insert fits into this groove. The head of the seismic detector is made in the form of a housing with lateral holes and an annular slot together with a cover with screws. The sealing system is made in the form of a cap located in the housing of the seismic detector and equipped with a flange on which is placed a rubber sealing ring under tension.

Card 1/2

UDC: 550.340.84

ACC NR: AP6021458



1—external shell; 2—spring; 3—insert; 4—housing of the head; 5—holes; 6—annular groove; 7—cover; 8—annular projection; 9—housing of the instrument; 10—cap; 11—flange of the cap; 12—sealing ring

SUB CODE: 09, 08/ SUBM DATE: 13Apr65

Card 2/2

KOVALEV, O.L. (Leningrad)

Experimental production and objective registration of acute prolapse of the brain tissue. Pat.fiziol.i eksp. terap. 4 no.4:87-88 JI-Ag '60. (MIRA 14:5)

1. Iz kafedry patologicheskoy fiziologii (nachal'nik - deystvitel'nyy chlen AMN SSSR prof. I.R.Petrov) Voenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(BPA IN--DISEASES)

KOVALEV, O.V.

Ecology of gall-making insects in the southern Maritime Territory.
Vop. ekol. 7:79-81 '62. (MIRA 16:5)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR,
Vladivostok.

(Maritime Territory--Galls (Botany))
(Maritime Territory--Insects, Injurious and beneficial)

AUTHORS: Kovalev, O. V., Lyubarskiy, G. Ya. 57-28-6-3/34

TITLE: On the Contact of Energy Bands in Crystals
(O soprikoosnovenii energeticheskikh polos v kristallakh)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 6,
pp. 1151-1158 (USSR)

ABSTRACT: In the present paper the authors investigated the degeneration of the energy levels of electrons in crystals, which are connected with the spatial symmetry and with the symmetry with respect to a modification of the time signal. It is known that some crystals have no insulated energy bands. The article mentions all spatial groups having these properties. The method employed in this paper for establishing conceptions of spatial groups differs somewhat from those described previously (references 1, 2, and 10). In the electron theory of solids the electron in the crystal is looked upon as a particle in the periodic potential field. Its wave function corresponds to the Schrödinger (Shredinger) equation if it is possible to do without spin-orbital

Card 1/3

On the Contact of Energy Bands in Crystals

57-28-6-3/34

interaction. It can be represented as the superposition of the wave functions

$$\psi_{kE}(r, t) = e^{i \left[(kr) - \frac{E}{\hbar} t \right]} u_{kE}(r).$$

If there is no spin-orbital connection, a trivial degeneration always takes place which depends on the orientation of the spin. It is different if spin-orbital connection plays an important part. Trivial degeneration vanishes (reference 4), and taking account of symmetry with respect to the modification of the time signal in every case leads to the conclusion concerning the touching of bands. Therefore, the investigation of every spatial group in the presence of a spin-orbital connection is superfluous. All results obtained which relate to the connection between degeneration of energy levels and the spatial symmetry of the crystal hold not only in the case of electrons but also phonons, spin waves, excitons, and other quasiparticles. Actually, only the fact is utilized that the wave function corresponding to any energy level, because of symmetry transformation, goes over into a function

Card 2/3

On the Contact of Energy Bands in Crystals

57-28-6-3/34

that corresponds to the same energy. It is, however, clear that every function describing the state of the phonons, spin waves, or excitons in the crystal, possesses this property in so far as the transformation of crystal symmetry leaves all conditions of the respective crystal symmetry unchanged. The authors thank I. M. Lifshits for valuable discussions of the subject. There are 1 table and 10 references, 0 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut, AN USSR
(Physical-Technical Institute, AS Ukrainian SSR)
Khar'kovskiy gos. universitet im. A. M. Gor'kogo
(Khar'kov State University imeni A. M. Gor'kiy)

SUBMITTED: November 6, 1956

1. Crystals—Energy 2. Nuclear energy levels 3. Electrons—
Theory 4. Nuclear spins 5. Mathematics

Card 3/3

AUTHORS: Lyubarskiy, G.Ya. and Kovalev, O.V. SOV/70-4-1-22/26
TITLE: Phase Transitions of the Second Order in Crystals with
Symmetry T_h^6 (Fazovyye perekhody vtorogo roda v kristallakh
s simmetriyey T_h^6)
PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 1, p 121 (USSR)
ABSTRACT: An analysis is given of the space groups to which crystals
of the space group T_h^6 can pass by a second-order phase
transition. Examples are FeS_2 , $CoSe_2$, SnI_4 , $ZrCl_4$,
 $Pb(NO_3)_2$, PbP_2O_7 . The theory was given by Landau (Ref 1).
According to this theory, there is, connected with each
phase transition of the second order, a certain unreduced
representation of the symmetry group of the crystal which
satisfies the determining conditions. Investigation of
the unreduced representations of the group
 T_h^6 showed that there are four such representations
connected by the vector $\underline{k} = 1/2(\underline{b}_1 + \underline{b}_2 + \underline{b}_3)$ where

Card1/3

SOV/70-4-1-22/26

Phase Transitions of the Second Order in Crystals with Symmetry T_h^6

$\underline{b}_1, \underline{b}_2, \underline{b}_3$ are reciprocal lattice vectors and three representations connected by the vector $\underline{k} = 0$. The first four representations permit the transition T_h^6 to C_1 and are accompanied by doubling of the unit cell. The other three retain the volume unchanged. One is T_h^6 to T^4 , another is T_h^6 to D_{2h}^{15} and the third is either T_h^6 to C_{2v}^5 or to C_3^4 according to the thermodynamic potential Φ .

The circumstance that one and the same representation can be connected with two different phase transitions shows that there is the possibility of the existence in the (p, T) diagram of a line of first-order transitions beginning at a point lying on the line of phase transitions of the second order. In the case examined, the line of first-order transitions separates phases with symmetry C_{2v}^5 and C_3^4 . Along the line of

Card2/3

Phase Transitions of the Second Order in Crystals with Symmetry T_h^6 SOV/70-4-1-22/26

second-order transitions intersecting it, on one side of the point of intersection, the transitions T_h^6 to C_{2v}^5 take place and on the other side the transitions T_h^6 to C_3^4 . The lines of phase transitions of the second order connected with other representations cannot intersect in this way with lines of phase transition of the first order. There are 2 Soviet references.

ASSOCIATION: Khar'kovskiy fiziko-tekhnicheskii institut
(Khar'kov Physico-technical Institute)

SUBMITTED: March 19, 1958

Card 3/3

KOVALEV, O.V.

Possible changes of $O7_h$ symmetry resulting from a phase transition of the second kind. Fiz.tver.tela 2 no.6:1220-1221 Je '60.
(MIRA 13:8)

1. Fiziko-tekhnicheskii institut AN USSR, Khar'kov.
(Phase rule and equilibrium)
(Crystals)

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S/181/60/002/010/033/051
B019/B056AUTHOR: Kovalev, O. V.

TITLE: The Degeneration of Energy Levels in Crystals

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 10,
pp. 2557 - 2566

TEXT: By means of the group theory, the author investigates the degeneration of electron energy levels in a crystal, which are related to their spatial symmetries. Small irreducible representations of the crystal groups are given, which are equal to the possible multiplicities of the energy levels in the case of a given quasimomentum k . In Tables 1-13 it is shown in what manner the groups correspond to one and the same vector k in the various crystal classes. The author finally says that the results obtained concerning degeneration of energy levels hold not only for an electron, but also for every quasiparticle investigated in the crystal. The author thanks G. Ya. Lyubarskiy for valuable discussions. There are 13 tables and 7 references: 2 Soviet, 3 US, and

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Card 1/2

The Degeneration of Energy Levels in
Crystals

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B019/B056

1 German.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR Khar'kov
(Institute of Physics and Technology of the AS UkrSSR,
Khar'kov)

✓B

SUBMITTED: December 21, 1959

Card 2/2

KOVALEV, O. V., Cand Phys-Math Sci -- "Representations of spatial groups and application of some of them to the physics of a solid body." Khar'kov, 1961. (Min of Higher and Sec Spec Ed UkSSR. Khar'kov Order of Labor Red Banner State Univ A, M. Gor'kiy) (KL, 8-61, 226)

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S/181/60/002/010/033/051
B104/E205

AUTHOR: Kovalev, O. V.

TITLE: Degeneracy of energy levels in crystals

PERIODICAL: Fizika tverdogo tela, v. 2, no. 10, 1960, 2557 - 2566

TEXT: The degeneracy of electron energy levels in crystals due to spatial symmetry has been studied with the help of the group theory. Forced degeneracy is absent in those crystals, in which each element of symmetry g of the space group G can be represented by the product $t_\alpha h$, where h denotes

either a rotation or a mirror rotation, and t_α is a translation by the vector $\vec{\alpha}$. This kind of degeneracy is possible only in crystals whose space groups contain an element $g = t_\alpha h$ in such a way that t_α does not lie in the

space group. This occurs in all crystals whose space group contains an inverse or non-trivial screw axis or slip plane. In a previous paper (ZhTF, XXVIII, 1151, 1958), the author, jointly with G. Ya. Lyubarskiy, has calculated all space groups for which a vector \vec{k} corresponding to the degenerate energy levels could be found. In that paper, the authors

Card 1/4

Degeneracy of energy...

S/181/60/002/010/033/051
B104/B205

erroneously assigned the groups T^4 and O_h^9 to the above-mentioned groups. The groups C_{2v}^{16} , C_{2v}^{17} , D_{2h}^{17} , D_{2h}^{18} , D_2^{9d} , D_{2d}^{12} , D_{4h}^{18} , and O_h^{10} , in which forced degeneracy occurs, were not mentioned there. Following that paper, the author now calculates all irreducible representations of all space groups and presents the dimensions of the small irreducible representations of the groups G_k , which are equal to the possible multiplicities of energy-level degeneracies with a given value \vec{k} of the quasi-momentum. In these representations, G indicates the space group of the crystal, \hat{G} the point group (class) of the crystal, G_k the group of the vector \vec{k} , which is composed of those elements $g = t_\alpha h$ for which $h\vec{k} = \vec{k} + \vec{r}$ holds. Here, \vec{r} may be any vector of the inverse lattice. The corresponding set of rotations and mirror rotations h forms the space group \hat{G}_k . In addition to the lattice-type tables for the various syngonies, the author also presents explicit representations for \vec{k}_1 and for the cases of degeneracy. It is shown that the point groups C_k correspond to the same vector \vec{k} in the various crystal groups. In conclusion, the results are summarized as follows: 1) Triclinic Card 2/4

Degeneracy of energy...

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B104/B205

syngony of the lattice Γ_t : no forced degeneracy. 2) Monoclinic syngony of the lattice Γ_m . This lattice shows the following degeneracies: $C_{2h}^2: \vec{k}_{8-11}(2)$; $C_{2h}^4: \vec{k}_{8, 10, 12, 14}(2)$; $C_{2h}^5: \vec{k}_{9, 10, 12, 14}(2)$. Monoclinic syngony of the lattice Γ_m . Here, degeneracy appears in the group $C_{2h}^6: \vec{k}_{7,9}(2)$. 3) Rhombic syngonies of the lattices $\Gamma_o, \Gamma_o^b, \Gamma_o^f, \Gamma_o^v$ with a large number of degeneracies. 4) Tetragonal syngony of the lattices Γ_q and Γ_q^v with their degeneracies. 5) Cubic syngonies of the lattices Γ_c, Γ_c^f , and Γ_c^v with their degeneracies. 6) Rhombohedral syngony of the lattice Γ_{rh} with degeneracies of the group $D_{3h}^6: \vec{k}_4(2); \vec{k}_8(2,2,2)$. 7) Hexagonal syngony of the lattice Γ_h with its degeneracies. It is finally noted that the results obtained here for the degeneracy of energy levels refer to all quasi-particles which are studied in a crystal, for the author considered only the fact that a wave function referring to a definite energy level is

Card 3/4

Degeneracy of energy...

S/181/60/002/010/033/051
B104/B205

transformed into a function by a symmetry operation. G. Ya. Lyubarskiy is thanked for valuable discussions. There are 13 tables and 7 references: 3 Soviet-bloc and 4 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskii institut AN USSR Khar'kov (Institute of Physics and Technology, AS UkrSSR, Khar'kov)

SUBMITTED: December 21, 1959

Card 4/4

KOVALEV, O.V. [Koval'ov, O.V.]

Characters of single-valued irreducible representations of
space groups of trigonal and hexagonal systems. Part 1. Ukr. fiz.
zhur. 6 no.3:353-365 My-Je '61. (MIRA 14:8)

1. Fiziko-tekhnicheskiy institut AN USSR, g. Khar'kov.
(Lattice theory)

KOVALEV, O.V. [Koval'ov, O.V.]

Characters of two-valued irreducible representations of space groups of trigonal and hexagonal systems. Part 2. Ukr. fiz. zhur. 6 no.3:366-375 My-Je '61. (MIRA 14:8)

1. Fiziko-tekhnicheskii institut AN USSR, g. Khar'kov.
(lattice theory)

KOVALEV, O.V.

Possible magnetic structures in crystals with symmetrical close
hexagonal packing of magnetic atoms. Fiz. tver. tela 5 no.11:
3164-3172 N '63. (MIRA 16:12)

1. Fiziko-tekhnicheskii institut AN UkrSSR, Khar'kov.

KOVALEV, O.V.

Determining the symmetry of magnetic crystals. Fiz. tver. tela 5
no.11:3156-3163 N '63. (MIRA 16:12)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.

ACCESSION NR: AP4034046

S/0126/64/017/004/0490/0499

AUTHOR: Kovalev, O. V.

TITLE: Symmetry of magnetic crystals with equilibrium null field moment close to the Curie point

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 4, 1964, 490-499

TOPIC TAGS: phase transition, magnetic moment, Curie point, translational displacement, cubic lattice, alpha iron, gamma iron, manganese nitride

ABSTRACT: The change in the magnetic symmetry near the Curie point was studied on the basis of the thermodynamic theory of phase transition of the second kind. The method developed in an earlier work by the author (FTT, 1963, 5, 3156), for studying the transition of crystals from the paramagnetic state into only those states in which the total magnetic moment M_0 of all crystals was other than zero, was used to investigate the magnetic structure of these crystals during such transitions. Illustrative symmetric groups of crystals in paramagnetic states were studied. For all the 32 classes of crystallochemical symmetry, magnetic classes were found admitting $M_0 \neq 0$. Particular examples were treated for the

Card 1/2

KOVALEV, D.V.

Symmetry of magnetic crystals with a non-zero integral moment
close to the Curie point. Fiz. met. i metalloved. 17 no.4:490-
499 Apr '64. (MIRA 17:8)

1. Fiziko-tekhnicheskii institut AN UkrSSR.

L 16168-65 EWT(a)/EWT(1)/EPF(a)/EEC(a)-2/EPF(n)-2/EPR/T/ENG(j) Pr-4/Pu-4
SSD/AFWL/ASD(a)-5/AS(mp)-2/IJP(a) WH

ACCESSION NR: AP5000283

S/0070/64/009/006/0783/0790

AUTHOR: Kovalev, O. V.

TITLE: Magnetic structures near the Curie point

SOURCE: Kristallografiya, v. 9, no. 6, 1964, 783-790

TOPIC TAGS: magnetic structure, second order phase transition,
symmetry group, paramagnetic component, crystal symmetry, Curie
point

ABSTRACT: All possible changes of point magnetic symmetry occurring
in magnetic transitions from the paramagnetic phase are calculated
on the basis of the Landau theory of second-order phase transitions.
The correspondence between the microscopic structure of matter in
the paramagnetic phase and the magnetic groups that are realized
in the magnetic phase is established with the aid of the concept of
the proper symmetry group of the magnetic atom in the paramagnetic

Card 1/2

L 16168-65
ACCESSION NR: AP5000283

phase. The magnetic symmetry classes which can be realized below the Curie point are determined for crystals of all 32 paramagnetic classes. The calculations are limited to transitions in which the periods of the resultant magnetic structure differ only slightly from the crystallographic periods in the paramagnetic phase, and coincide with those in the magnetic phase. The results of the calculations are presented in two groups. One contains for each paramagnetic class the possible classes below the Curie point and indicates the representations which lead to these classes. The second group sets in correspondence with each variant of the paramagnetic class and the proper group $G(A)$ a set of representations responsible for the magnetic transitions. Orig. art. has: 2 formulas and 2 tables.

ASSOCIATION: Fiziko-tekhnicheskii institut AN UkrSSR (Physico-technical Institute, AN UkrSSR)

Card 2/3

L 16168-65

ACCESSION NR: AP5000283

SUBMITTED: 20Dec63

ENCL: 00

SUB CODE: EM, 88

NR REF SOV: 012

OTHER: -000

Card 3/3

L 25088-65 / EWT(1)/T/EEC(b)-2 IJP(c)

ACCESSION NR: AP5003420

B/0181/65/007/001/0103/0110

AUTHOR: Kovalev, O. V.

TITLE: Helicoidal structures in MnO_2

SOURCE: Fizika tverdogo tela, v. 7, no. 1, 1965, 103-110

TOPIC TAGS: manganese oxide, helicoidal structure, second order phase transition, magnetic density, magnetic moment

ABSTRACT: Helicoidal magnetic structures[?] in MnO_2 are considered on the basis of the Landau theory of second-order phase transitions. The average magnetic density is expanded in terms of functions that realize the irreducible transformations T of the symmetry group $G \times \mathbb{R}$ of the crystal in the paramagnetic phase. The author uses the same scheme employed by him earlier (FTT v. 5, 3156, 1963) to analyze ordinary magnetic structures. The magnetic density is expanded initially in terms of functions with a vector lying inside the

Cont.

1/2

L 25089-65

ACCESSION NR: AP5003420

2

Brillouin zone and determined experimentally; the expansion functions are thus chosen in such a way that they themselves determine the helicoidal character of the structure. Unlike the results of I. Ye. Dzyaloshinskiy (ZhETF v. 46, 1420, 1964), elliptical helicoidal configurations of the magnetic moments are obtained. "The author thanks V. G. Bar'yakhtar for a discussion of the work." Orig. art. has: 2 figures and 13 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov
(Physicotechnical Institute AN UkrSSR)

SUBMITTED: 27Jun64

ENGL: 00

SUB CODE: 88, EM

RR REF SOV: 005

OTHER: 001

Card

2/2

L 45205-65 EWT(1) IJP(8)

ACCESSION NR: AP5006908

8/0181/65/007/003/0919/0920

AUTHOR: Kovalev, O. V.

TITLE: Possible changes in the point-like magnetic symmetry in a phase transition from the paramagnetic phase

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 919-920

TOPIC TAGS: group theory, magnetic symmetry, point symmetry, secondary phase transition, paramagnetic phase

ABSTRACT: The author lists all the changes occurring in the magnetic point symmetry $\bar{G} \times R \rightarrow \bar{g}$, where \bar{g} is a subgroup of $\bar{G} \times R$ during a phase transition from the paramagnetic phase. The method used to obtain the chains was described earlier (FIZ v. 5, 3156 and 3164, 1963) and is based on the Landau theory of second-order phase transitions. The case when the magnetic and crystal-chemical cells coincide in the magnetic phase is considered. Some of the transitions listed are forbidden for certain crystals by virtue of properties of their microscopic symmetry. An account of all cases of microscopic symmetry and the limitations resulting there-

Card 1/2

1 45205-65

ACCESSION NR: AP5006908

from is given in another paper by the author (Kristallografiya v. 9, 783, 1964).
It is seen from the list that some magnetic transitions are accompanied by a decrease in the crystallographic symmetry and that transitions from the $O \times R$ group are not possible in many of the subgroups.

ASSOCIATION: None

SUBMITTED: 23Sep64

ENCL: 00

SUB CODE: SS,EM

NR REF SOV: 004

OTHER: 001

238
Card 2/2

KOVACH, F.

All-Union Communist Party (Bolshevik) - Party Work

■Instructing activist units, " V pom. profaktivu 13, No. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, May 1952, Unclassified.

KOVALEV, P., inshener

Experience in packaged sugar transportation across the Black Sea.
Mor.flot 17 no.5:4-7 № '57. (MLRA 10:7)

1. Odesskiy institut inshenerov morskogo flota.
(Sugar--Transportation) (Loading and unloading)

KOVALEV, P.

Two years of work. Sov.profsoiuzy 16 no.13:41 J1 '60.

(MIRA 13:8)

1. Zaveduyushchiy otделom kul'turno-massovoy raboty Kazakhskogo
respublikanskogo soveta prosoyuzov.
(Kazakhstan--Adult education)